

REMARKS

Claims 2 and 4 to 21, 25 to 28, and 30 are pending in this application. Claim 4, 18, 26, and 28 have been amended, and claims 24 and 29 have been canceled by this amendment.

The specification has again been objected to. The Examiner states: “Antecedence has not been found within the specification for claiming that the molecular weight of claim 11 is weight average molecular weight.” Applicants previously responded by noting that Applicants’ original claim 11 is part of the specification. The Examiner acknowledged that the issue at hand is not whether support exists for the subject matter. Further, the Examiner noted that this issue can be addressed by amending the specification to contain the same language as claim 11. The specification has been so amended and, therefore, withdrawal of the objection is respectfully requested.

Claims 2, 4–16, 18–21, and 24–30 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite. Specifically, the Examiner stated that the language of amended claim 18 was indefinite because the language is subjective since it cannot be determined exactly what constitutes “grainy”. In response, claim 18 has been amended to eliminate the word “grainy” and substitute the objective description of –wherein particles in the composite material are visibly discrete and the geometry of the particles is generally irregular–. As described on page 4/14 of the specification:

“The solids are characterized in that they have a particle size of 0.1 mm to about 15 mm (.003937 to 0.5906 in). Hence, they are discrete particles, which can be differentiated by the eye. The composite material is visibly grainy. The geometry of the particles is generally irregular. The combination of the gel, which is as clear as glass in the basic state, with the irregular solid gives an attractive appearance to the composite material parts of the invention.”

It is believed that the language now used in the claim is clear and definite and supported by the specification. Withdrawal of the rejection is therefore respectfully requested.

Claims 4 and 26–30 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. The Examiner states

that Applicants (1) have failed to indicate how the specification provides support for the language “about 1mm” in claim 4 and (2) have not provided adequate support for all values within the ranges denoted by “greater than” or for the specific values for all compositions that are encompassed by the claims.

As to the Examiner’s point (1), claim 4 has been amended to delete the word “about”. Support for the language of claim 4 is to be found on page 4/14 of the specification as follows:

“The diameter of the solid particles is more preferably between 1 and 5 mm (.03037 to 0.1969 in).”

The range recited in claim 4 is the preferred range. The preceding paragraph on the same page of the specification quoted above states that the range can be 0.1 mm to 15 mm, which range is recited in claims 17 and 18. As amended, it is believed that claim 4 is no longer subject to this ground of rejection and, therefore, withdrawal of the rejection as to claim 4 is respectfully requested.

As to the Examiner’s point (2), the Examiner acknowledges that the composition of Example 2 provides support for the claimed tensile strength of 280 kPa. This is the limitation of claim 27 which, apparently, should not have been included in this ground of rejection. Withdrawal of the rejection as to claim 27 is therefore respectfully requested. Claim 26 has been amended to recite a hardness rating of 39 which, again, is supported by the composition of Example 2. Claim 28 has been amended to delete the words “greater than” and, as amended, is supported by Sample 1 in the Data Table on page 10/14 of the specification. Claim 29 has been canceled. Claim 30 is supported by Sample 1 in the Data Table on page 10/14 and apparently should not have been included in the rejection. Withdrawal of the rejection as to claims 26, 28 and 30 is respectfully requested.

Claims 2, 4–21, and 24–30 were rejected under 35 U.S.C. §103(a) as being unpatentable over Shapel et al. (‘834) in view of King (‘135) and further in view of Ehrlich, Jr. (‘702 and Fracalossi et al. (‘221) and DE 3841043. This rejection is respectfully traversed for the reason that the combination of Shapel et al., King, Ehrlich, Jr., Fracalossi et al. and DE3841043 does not suggest or otherwise teach the claimed invention.

The claimed invention is a composite material and a molding made from the composite material characterized as comprising a polyurethane gel having coarse-grain particles distributed in the polyurethane gel, the particles being selected from the group consisting of cork pieces, wood pieces, wood chips, and foam flakes. These particles are discrete particles, which can be differentiated by the eye, giving the composite material a visibly grainy appearance. The geometry of the particles is generally irregular. Applicants have surprisingly found that the composite material has a better damping characteristic compared to the gel alone. The composite material is therefore suitable for any use which requires a high loss factor and good shock absorption. Moreover, the incorporation of the particles provides a remarkable increase in solidity of the composite material as compared to gel alone. In the gel material of the claimed invention, the coarse grain, irregularly shaped solid particles contribute to the mechanical properties in a way that could not be foreseen. This is due, in part, to a higher inner friction between irregular particles. This works in combination with the low density and specific elasticity of cork and the flexibility and other favorable properties of the gel.

In the Office Action, the Examiner concedes that Schapel fails to specifically recite the use of coarse materials to form a composite. The effect of this measure cannot be foreseen in view of the other references. More specifically, King refers to shoe inner soles and the like. King does not use a polyurethane gel, but a polyurethane adhesive as a binder between the cork pieces. The binder – also called “liquid polyurethane resin” – is totally absorbed on the particle surface (see column 2, lines 9 – 14 of King). The impregnated cork particles can be pressed or molded, and the resulting composite material behaves like cork. Starting with this material, designed for shoe insoles, it is impossible to find a viscoelastic mattress or cushion material and it is not made obvious that this might be achieved with a polyurethane gel like disclosed by Schapel et al.

Moreover, Ehrlich can not be combined with Schapel as well. Ehrlich is very specifically directed to shoes and focuses on a cell structure gained by foaming. This will never lead to the viscoelastic material of the claimed invention and does in no way render obvious a mattress material.

Fraculossi refers to mattresses, cushions and the like, but uses as the basic material a polyurethane foam. The properties of a polyurethane foam are in no way

comparable with a polyurethane gel. The cork pieces are fixed in the foam. From the behaviour of cork pieces embedded in a foam material it is impossible to conclude what will happen with these cork pieces in a polyurethane gel like that disclosed by Schapel.

DE 38 41 043 C2 uses not only cork but additionally fibers and a surfactant silicone. The polyurethane is not a gel material. Drawing a teaching to a polyurethane gel material with coarse grain cork particles is not possible, since the fibers as well as the different polyurethane basis material and the surfactant greatly influence the properties of the composite material.

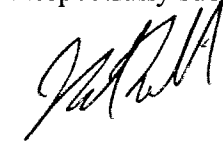
For these several reasons, reconsideration and withdrawal of the obviousness rejection are respectfully sought.

In view of the foregoing, it is respectfully requested that the application be reconsidered, that claims 2, 4 to 21, 25 to 28, and 30 be allowed, and that the application be passed to issue.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

A provisional petition is hereby made for any extension of time necessary for the continued pendency during the life of this application. Please charge any fees for such provisional petition and any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 50-2041 (Whitham, Curtis, Christofferson & Cook, P.C.).

Respectfully submitted,



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